

Application No. 10/602,755  
Art Unit 1713, Examiner Hu  
Docket No. CL-1459 US DIV  
October 20, 2005  
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**Remarks: General**

A petition under 37 CFR §1.136 for a three-month extension of time to respond to the Examiner's action is enclosed, the fee for which should be charged to Deposit Account No. 04-1928 (E.I. du Pont de Nemours and Company).

By Applicant's calculation, no fee is due by reason of this amendment to the claims. If any fee other than or in addition to the extension fee mentioned specifically above is required to authorize or obtain consideration of this response, please charge such fee to Deposit Account No. 04-1928.

Claims 4~8 and 13~15 are now active in the application. Applicant hereby requests reconsideration and further examination of the application in view of the reasons it has set forth below for allowance of the claims.

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### Remarks: Detailed Action

#### I.

In Section 2, the Examiner has objected to the disclosure because of informality in respect of four specified items. The written description has been amended as suggested by the Examiner in respect of those items, and Applicant therefore respectfully requests that the Examiner withdraw this objection.

#### II.

In Section 3, the Examiner has objected to Claims 4, 13 and 16 because of informality in respect of the manner in which "n >= 1" is presented in the text. Claim 16 has been canceled. As Claims 4 and 13 have been amended in the manner as suggested by the Examiner, Applicant respectfully requests that the Examiner withdraw this objection.

#### III.

In Section 4, the Examiner has rejected Claim 13 under 35 U.S.C. §112, second paragraph, with respect to the use of the expression "ca.". As shown in *Webster's New Collegiate Dictionary* (G.&C. Merriam Co., Springfield MA, 1981) on pages 151 and 200 (copy attached), the expression "ca." is defined as an abbreviation for the word "circa", which in turn may be defined as "approximately". Claim 13 has therefore been amended to replace the expression "ca." with a suitable word having the same meaning, and, instead of "approximately", the word "about" has been chosen as being a word frequently used in claim drafting. Applicant therefore respectfully requests that the Examiner withdraw the rejection of Claim 13 under 35 U.S.C. §112.

#### IV.

In Section 7, the Examiner has rejected Claims 4-8 and 13-17 under 35 U.S.C. §103(a) as being unpatentable over WO 98/31716 ("Drysdale") in view of WO 97/23448 ("Howells") and US 4,349,650 ("Krespan"). Claims 16 and 17 have been canceled.

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## A.

With respect to Claims 4-8, Drysdale discloses grafting the specified monomer,  $\text{CH}_2=\text{CHR}^1\text{R}^2\text{R}^6\text{Y}$ , to a polymer such as polyethylene, a polyether or an ethylene copolymer. Drysdale does not teach or suggest grafting the monomer to a polymer prepared from  $\text{VF}_2$  (vinylidene fluoride).

Krespan discloses a variety of monomers, all of which are fluorinated on the alpha carbon, and none of which contain an acid or ionized end group. These monomers may, however, be copolymerized with  $\text{VF}_2$ .

There would be no motivation for the artisan to replace the monomer utilized in the copolymers of Krespan with the monomer used for grafting in Drysdale because (1) the alpha carbon of the Krespan monomer is fluorinated whereas the alpha carbon of the Drysdale monomer is not; (2) the Drysdale monomers that would, in the Krespan copolymer, give Applicant's claimed polymers have an acid or ionized end group, and Krespan does not incorporate any such monomers in its system; and (3) Drysdale discloses the use of its specified monomer for the purpose of grafting it to a previously-prepared polymer rather than copolymerizing it with another monomer.

Howells does not add anything to overcome the deficiencies of the other two references in this regard because, while it does disclose a method of preparing (fluoroalkylsulfonyl) (fluorosulfonyl) imides and discloses that they may be polymerized, it does not teach or suggest  $\text{VF}_2$  as a comonomer.

With respect to comment (1) above concerning the alpha carbon, the Examiner has alleged that  $\text{CH}_2=\text{CH}-$  systems are equivalent to  $\text{CF}_2=\text{CF}-$  systems, but Applicant respectfully submits that such equivalence is not recognized by the references discussed above.

## B.

With respect to Claims 13-15, Drysdale does not teach or suggest a process such as claimed because all manipulations performed in Drysdale are performed on the sulfonyl fluoride end group after the monomer has been grafted to the base polymer (see, e.g., Examples 3, 4, 6, 7, 9 and 10). In Krespan, similarly, such

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manipulations are performed after a copolymer has been prepared (see, *e.g.*, 11/64 to 12/11).

Moreover, there is no disclosure in either of those references of performing the step at a pH of less than about 12.

Howells does not add anything to overcome the deficiencies of the other two references in this regard because it is directed to the preparation of an imide from a sulfonyl fluoride rather than the acid or salt form thereof.

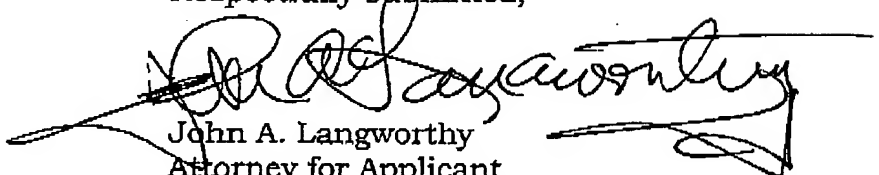
In view of these distinctions between the subject matter of Claims 4-8 and 13-15 and the references discussed above, Applicant respectfully requests that the Examiner withdraw the rejection of those claims under 35 U.S.C. §103(a).

V.

Applicant has reviewed the reference that has been made of record but is not relied on, and submits that it is of no greater pertinence to the claims than the references discussed in detail above.

In view of the foregoing, Applicant submits that all of the Examiner's objections and rejections have been properly traversed, and that the pending claims are in condition for allowance, request for which is hereby respectfully made.

Respectfully submitted,



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**Appendix A**  
Marked-Up Version of  
Original Form of Deleted Paragraphs,  
Showing Changes Thereto from Which  
Replacement Paragraphs Are Derived

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**Paragraph 001**

Monomers of the formula



where  $n \geq 1$  are disclosed in WO 9831716.  $n=1-4$  compositions are explicitly disclosed in Chen et al, "Perfluoro and polyfluorosulfonic acids", Huaxue Xuebao (1982), 40(10), 904-12.

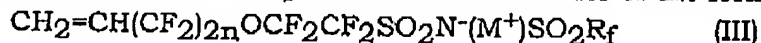
**Paragraph 002**

See for example, Ezzell et al. U.S. 4,940,525, wherein is used 25 wt % NaOH(aq) for 16 hours at 80-90°C; Banerjee et al. U.S. 5,672,438, wherein is used 25 wt % NaOH for 16 hours at 90°C, or, in the alternative, an aqueous solution of 6-20% alkali metal hydroxide and 5-40% polar organic liquid (e.g., DMSO) for 5 minutes at 50-100°C; Ezzell et al. U.S. 4,358,545 wherein is used 0.05N NaOH for 30 minutes for 50°C; Ezzell et al. U.S. 4,330,654, wherein is used 95% boiling ethanol for 30 minutes followed by addition of equal volume of 30% NaOH (aq) with heating continued for 1 hour; Marshall et al. EP 0345964 A1, wherein is used 32 wt % NaOH (aq) and methanol for 16 hours at 70°C, or, in the alternative, an aqueous solution of 11 wt % KOH and 30 wt % DMSO for 1 hour at 90°C; and, Barnes et al. U.S. 5,595,676, wherein is used 20 wt % NaOH (aq) for 17 hours at 90°C.

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### Paragraph 003

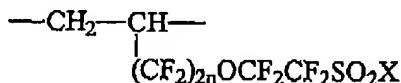
The present invention provides for a monomer of the formula



where  $n \geq 1$ ,  $n \geq 1$  and  $\text{M}^+ = \text{H}^+$  or an alkali metal cation, and  $\text{R}_f$  is C1-4 perfluoroalkyl optionally substituted by one or more ether oxygens.

### Paragraph 004

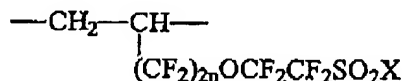
The present invention further provides for a polymer comprising monomer units of VF<sub>2</sub> and 1 to 40 mol % of ionic monomer units of the formula



where  $n \geq 1$ ,  $n \geq 1$ , X is  $\text{O-M}^+$ , or  $\text{N}^-(\text{M}^+)\text{SO}_2\text{R}_f$  where  $\text{M}^+$  is  $\text{H}^+$  or an alkali metal cation and  $\text{R}_f$  is C1-4 perfluoroalkyl optionally substituted by one or more ether oxygens.

### Paragraph 005

Further provided is a polymer comprising monomer units of ethylene, tetrafluoroethylene, and 4 to 20 mol % of functionalized monomer units of the formula



where  $n \geq 1$ , X is F,  $\text{O-M}^+$ , or  $\text{N}^-(\text{M}^+)\text{SO}_2\text{R}_f$  where  $\text{M}^+$  is  $\text{H}^+$  or an alkali metal cation and  $\text{R}_f$  is C1-4 perfluoroalkyl optionally substituted by one or more ether oxygens.

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#### Paragraph 006

Further provided is a process for forming a composition of the formula  $\text{CH}_2=\text{CH}(\text{CF}_2)_{2n}\text{OCF}_2\text{CF}_2\text{SO}_3^-\text{M}^+$  where  $n \geq 1$ ,  $\text{M}^+$  is  $\text{H}^+$  or an alkali metal cation, the process consisting essentially of contacting a composition represented by the formula  $\text{CH}_2=\text{CH}(\text{CF}_2)_{2n}\text{OCF}_2\text{CF}_2\text{SO}_2\text{F}$  with weakly basic solution of an alkali metal salt or hydroxide in a polar solvent, the solution having a pH of less than ca. 12, at a temperature in the range of 0-50°C.

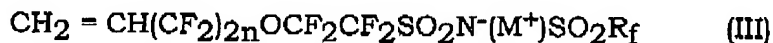
#### Paragraph 007

Further provided is a process for forming a composition of the formula  $\text{CH}_2=\text{CH}(\text{CF}_2)_{2n}\text{OCF}_2\text{CF}_2\text{SO}_2\text{N}^-(\text{K}^+)\text{SO}_2\text{R}_f$  where  $n \geq 1$ ,  $\text{R}_f$  is C1-4 perfluoroalkyl optionally substituted by one or more ether oxygens, the process consisting essentially of

- forming a 0.001-5 molar solution of  $\text{R}_f\text{SO}_2\text{NH}_2$  in an organic solvent;
- combining said solution with  $\text{CH}(\text{CF}_2)_{2n}\text{OCF}_2\text{CF}_2\text{SO}_2\text{F}$  and KF to form a mixture;
- heating said mixture to 50-180°C; and
- separating the product.

#### Paragraph 008

The present invention provides for a monomer represented by the formula

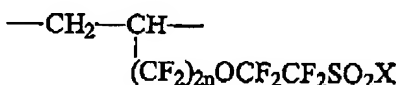


where  $n \geq 1$  and  $\text{M}^+ = \text{H}^+$  or an alkali metal cation, and  $\text{R}_f$  is C1-4 perfluoroalkyl optionally substituted by one or more ether oxygens. Preferably  $\text{R}_f$  is  $\text{CF}_3$ , and  $\text{M}^+$  is  $\text{H}^+$  or  $\text{Li}^+$ .

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### Paragrpah 009

The composition of the polymer depends on the ratio of monomers. This was true for all three monomers. One of skill in the art will appreciate that specific reactivity ratios of monomers is determined by the particulars of monomer structure. Accordingly, the present invention provides for an ionomer comprising monomer units of VF<sub>2</sub> and 1 to 40 mol % of monomer units described by the formula



where  $n \geq 1$ ,  $n \leq 10$ , X is O-M<sup>+</sup>, or N-(M<sup>+</sup>)SO<sub>2</sub>R<sub>f</sub>, where M<sup>+</sup> is H<sup>+</sup> or an alkali metal cation and R<sub>f</sub> is C1-4 perfluoroalkyl optionally substituted by one or more ether oxygens. Preferably the concentration of ionic monomer units is 4-20 mol %, most preferably 6-16 mol %. Preferably X is N-(M<sup>+</sup>)SO<sub>2</sub>R<sub>f</sub> where M is lithium and R<sub>f</sub> is CF<sub>3</sub>.

### Paragraph 010

In a preferred embodiment of the process of the invention, monomer (I) and the polymers of the invention formed from (I) are contacted at a temperature in the range of 50-180°C, preferably 70-120°C, with a 0.001-5.0 molar solution of CF<sub>3</sub>SO<sub>2</sub>NH<sub>2</sub> in an organic solvent in the presence of KF precharged to the reaction vessel to form the potassium imide form of (III) or the polymer formed therefrom. Suitable organic solvents include toluene, chlorobenzene, THF, and oligo ethers. Preferred is acetonitrile. Other ionic forms can be formed by contacting the potassium imide form with an alkali metal salt solution, such as LiCl in methanol, or an acid such as aqueous HCl.

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**Paragraph 011**

EXAMPLE 8

Copolymerization of  $\text{CH}_2=\text{CHCF}_2\text{CF}_2\text{OCF}_2\text{CF}_2\text{SO}_2\text{F}$  with  
TFE

---

and ethylene in F113

A 240-mL stainless steel tube was charged with 100 mL of 1,1,2-trichlorotrifluoroethane (F113), 10 g of  $\text{CH}_2=\text{CHCF}_2\text{CF}_2\text{OCF}_2\text{CF}_2\text{SO}_2\text{F}$  and 0.8 g of Lupersol 11 and attached to a gas manifold. The tube was cooled in dry ice and the contents degassed by several cycles of evacuation and repressurization with nitrogen gas. After the final evacuation step, the tube was pressurized with 10 g of ethylene and 30 g of TFE. The tube was then sealed and heated to 60°C and held for 8 hours to effect polymerization. After completion of the polymerization, the unreacted ethylene and TFE were removed by venting and the white solid was washed with MeOH and dried in a partial vacuum oven at 80°C to give 47.0 g of polymer. IR(KBr):  $1464\text{ cm}^{-1}$  ( $\text{SO}_2\text{F}$ ). Elementary analysis of polymer indicated that polymer composition was 8.67 parts ( $\text{CF}_2\text{CF}_2$ ) and 5.36 parts ( $\text{CH}_2\text{CH}_2$ ) to 1 part ( $\text{CH}_2\text{CHCF}_2\text{CF}_2\text{OCF}_2\text{CF}_2\text{SO}_2\text{F}$ ) on a molar basis, based on 37.0% of C, 3.12% of H, 52.3% of F and 2.73% of S. DSC showed that the polymer had  $T_m$  of 214°C. By TGA, 10% weight loss was 430°C by TGA in  $\text{N}_2$ . A clear transparent and tough film was pressed by placing a sample of the polymer so formed between the platens of a hydraulic press and heated to 250°C with a ram force 20,000 lbs.

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## Appendix B

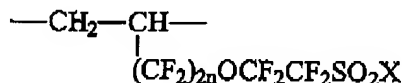
(i) Amendments  
 in marked-up form to  
 Claims 4 and 13, and

(ii) Status of all other claims

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1 ~ 3. (canceled).

4. (currently amended) A polymer comprising monomer units of  $\text{VF}_2$  and 1 to 40 mol % of ionic monomer units described by the formula



where  $n \geq 1$ ,  $n \geq 1$ , X is  $\text{O-M}^+$ , or  $\text{N}^-(\text{M}^+)\text{SO}_2\text{R}_f$  where  $\text{M}^+$  is  $\text{H}^+$  or an alkali metal cation and  $\text{R}_f$  is C1-4 perfluoroalkyl optionally substituted by one or more ether oxygens.

5. (original) The polymer of Claim 4 wherein the concentration of said ionic monomer units is 6 to 16 mol- %.

6. (original) The polymer of Claim 4 wherein X is  $\text{N}^-(\text{M}^+)\text{SO}_2\text{R}_f$  where  $\text{M}^+$  is  $\text{H}^+$  or an alkali metal cation and  $\text{R}_f$  is C1-4 perfluoroalkyl optionally substituted by one or more ether oxygens.

7. (original) The polymer of Claim 4 or 6 wherein  $\text{M}^+$  is  $\text{H}^+$  or  $\text{Li}^+$ .

8. (original) The polymer of Claim 6 wherein  $\text{R}_f$  is  $\text{CF}_3$ , and  $n=1$ .

9 ~ 12. (canceled).

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13. (currently amended) A process for forming a composition of the formula  $\text{CH}_2=\text{CH}(\text{CF}_2)_{2n}\text{OCF}_2\text{CF}_2\text{SO}_3^-\text{M}^+$  where  $n \geq 1$ ,  $\text{M}^+$  is  $\text{H}^+$  or an alkali metal cation, the process consisting essentially of contacting a composition represented by the formula  $\text{CH}_2=\text{CH}(\text{CF}_2)_{2n}\text{OCF}_2\text{CF}_2\text{SO}_2\text{F}$  with a weakly basic solution of an alkali metal salt or hydroxide in a polar solvent, the solution having a pH of less than ~~ea-~~about 12, at a temperature in the range of 0-50°C.

14. (original) The process of Claim 13 wherein the alkali metal salt or hydroxide is an alkali metal carbonate.

15. (original) The process of Claim 14 wherein the alkali metal carbonate is lithium carbonate.

16 - 17. (canceled).

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P. 17



WEBSTER'S  
New  
Collegiate  
Dictionary

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v having teeth on its periphery and to  
an important-sounding usu. technical  
in meaning used chiefly to impress lay.

work — used for underwear

1 warfare; biological warfare 2 black  
ter. li. fr. *Ar. abina* our father) chiefly *Eran*  
in used as a noun of address

in: ba) prep [ME, prep. & adv., fr. OE,  
7 bl by, near, L. *ambi* on both sides,  
proximity to: NEAR (standing ~ the  
or through the medium of: VIA (enter  
region of: TOWARD (north ~ east) 3  
around: PAST (went right ~ him) 3  
fied ~ night) b: not later than (~2  
agency or instrumentality of (~ force)  
witness or sanction of (~sworn ~ all that  
intimacy with (~acted ~ the rules) b: in  
brand) (called her ~ name) 7: with  
the amount or extent of (win ~ a vote)  
on with: SEESIDE 9: in successive traits  
the ~ (little) (walk two ~ two) 10 —  
multiplication, in division, and in mea-  
multiply 10 ~ 4) (a room 15 feet ~ 20

red meaning element — used as a func-  
tioning word or phrase) as an agent,  
is followed commonly by the agent or  
ult by the Romans) (destroyed by fire)  
THROUGH implies intermediacy and is  
someone or something felt as the medium  
of is gained or an effect produced (the  
ter) (gained his position through influ-  
ence) (the name of the instrument  
agent or agency works (ate with a fork)  
or it may take for its object something  
a instrument though serving as the in-  
on effect is produced (his speech in-  
a face contorted with anger)  
at hand: NEAR, b: at or to another's  
2: PAST (saw him go ~) 3: ASIDE

the main route: SIDE 2: INCIDENTAL  
(b) something of secondary impor-  
e by: by the way: INCIDENTALLY  
t for goodbye) — used to express fare-  
ing now

future time or occasion  
before long: SOON  
dy: on the whole, in general  
an indirect blow 2: an illegitimate

ve position of a participant in a tourna-  
after pairs are drawn and advances to  
lag  
bt, br, Interj (baby-talk redupl. of good-  
well)

adv: out esp. for a walk or ride —  
wants to go ~ the baby may put his  
for a hat —A.L. Chesel & Frances L.

n: BED, SLEEP lie down ... and go to

adv: to bed or sleep — used with the  
for just a second ... and then perhaps

ion /bi-ə-jek-shən/ n: a special direc-  
tions in order to fill a vacancy  
adj: gone by: PAST: esp: OUTMODED

n [ME *bi-lawe*, prob. fr. (assumed) ON  
g law] a rule adopted by an organiza-  
tion of its members and the regulation

secondary line: UNDERLINE 2: a line at  
in magazine article giving the writer's

field) under a by-line — byliner /-li-

secondary name 2: NICKNAME

boozes; bring your own bottle

passage to one side; esp: a deflected  
2 a: a channel carrying a fluid  
to main stream b: SHUNT 1b  
by means of a bypass b: to cause to  
neglect or ignore usu. intentionally b

ONE  
WAY  
engaged in on the side while the main  
dramatic production)  
1: something irrelevant (a in main

151

byre /bɪr/ n [ME, fr. OE *byr*; akin to OE *būr* dwelling — more  
at *bowen*] chiefly Brit: a cow barn  
byway /ˈbi-wei/ n: BYWAY  
Byronic /ˈbi-rɒ-nɪk/ adj: of, relating to, or having the characteris-  
tics of the poet Byron or his writings — Byronicist /-ɪk-ɪst/ n  
adv — Byronicism /ˈbi-rɒ-nɪz-əm/ n  
byssine /ˈbi-si-n/ n, pl *-sines* /-sɪz/ [NL, fr. L. *byssinus*  
of fine linen, fr. Gk *byssos* fr. *byssos* byssus] a chronic industrial  
disease associated with the inhalation of cotton dust over a long  
period of time and characterized by chronic bronchitis sometimes  
complicated by emphysema or asthma  
byssine /ˈbi-si-n/ n, pl *-sines* /-sɪz/ [L, fr. Gk  
byssos flax of Sem origin akin to Heb *byss* linen cloth] 1: a fine  
prob. linen cloth of ancient times 2 [NL, fr. L]: a tuft of long  
tough filaments by which some bivalve mollusks (as mussels) make  
themselves fast  
by-stander /ˈbi-stænd-ər/ n: one present but not taking part in a  
situation or event: a chance spectator  
by-street /ˈbi-stri:t/ n: a street off a main thoroughfare: side street  
type /ˈtaɪp/ n (verb, also: of type) a group of adjacent binary digits  
often shorter than a word that a computer processes as a unit (an  
4-bit ~)



c /s/ n, pl *c's* or *cs* /sɪz/ 1 a: the 3d  
letter of the English alphabet b: a graphic  
representation of this letter c: a speech  
counterpart of orthographic c 2 a: one  
hundred — see NUMBER table b: slang: a sum  
of \$100 3: the keynote of a C-major scale  
4: a graphic device for reproducing the letter  
c 5: one designated c esp. as the 3d in order  
or class 6 a: a grade rating a student's  
work as fair or mediocre in quality b: one  
graded or rated with a C 7: something  
shaped like the letter C

to abbr, often cap 1 calin 2 caloric 3 Canadian 4 canceled 5  
candle 6 corn 7 case 8 castle 9 catcher 10 Catholic 11  
cedi 12 Celsius 13 cent 14 centavo 15 centur 16 centi-  
17 centigrade 18 centime 19 centimeter 20 centum 21 cen-  
tury 22 chairman 23 chapter 24 circa 25 circuit 26 cir-  
cumference 27 clockwise 28 cloudy 29 cobalt 30 cocaine  
31 codex 32 coefficient 33 college 34 colon 35 color 36  
colt 37 [L. *conspici*] pallion 38 congress 39 conservative 40  
contrast 41 copyright 42 coat 43 cubic

2c symbol speed of light  
C symbol 1 capacitance 2 carbon  
ca abbr 1 centare 2 circa  
Ca symbol calcium

CA abbr 1 California 2 chartered accountant 3 chief account-  
ant 4 chronological age 5 commercial agent 6 controller of  
account 7 current account

cap /kæp/ n [Scot. var. of call]

cab /kæb/ n (verb, also: of cab) an ancient Hebrew unit of capacity  
equal to about two quarts

cab /kæb/ n (short for *cabriolet*) 1 a: (1): CABRIOLET (2): a  
similar light closed carriage (as a horse) b: a carriage for hire  
2: TAXICAB 3 (short for *cabin*) a: the part of a locomotive that  
houses the engineer and operating controls b: a comparable  
shelter on a truck, tractor, or crane

CAB abbr Civil Aeronautics Board  
cabal /kəˈbəl/ n [F *cabale* cabala, intrigue, cabal, fr. ML *cabbala*  
cabala, fr. L. *cabala*, fr. *cabala*, received (over)] 1: a number of  
persons secretly united to bring about an overturn or usurpation  
esp. in public affairs 2: the artifices and intrigues of such a group

cabal /kəˈbəl/ n (short for *cabriolet*) 1 a: (1): CABRIOLET (2): a  
similar light closed carriage (as a horse) b: a carriage for hire  
2: TAXICAB 3 (short for *cabin*) a: the part of a locomotive that  
houses the engineer and operating controls b: a comparable  
shelter on a truck, tractor, or crane

cabal /kəˈbəl/ n (short for *cabriolet*) 1 a: (1): CABRIOLET (2): a  
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byre • cabinet

by the way adv: in passing: INCIDENTALLY  
by virtue of prep: as a result of  
by-way /ˈbi-wei/ n 1: a little traveled side road 2: a secondary  
or little known aspect or field (meandering more and more in the  
fascinating ~ of learning —Times Lit. Supp.)  
by-word /ˈbi-wɜrd/ n 1: a proverbial saying: PROVERB 2 a: one  
that personifies a type b: one that is noteworthy or notorious 3  
: WITNESS 4: a frequently used word or phrase  
Byzantine /ˈbɪz-ən-ti-n/ n: a native or inhabitant of  
Byzantium  
Byzantine adj 1: of, relating to, or characteristic of the ancient  
city of Byzantium 2: of, relating to, or having the characteristics  
of a style of architecture developed in the Byzantine Empire esp. in  
the 5th and 6th centuries featuring the dome carried on penden-  
tives over a square and incrustation with marble veneering and  
with colored mosaics on grounds of gold 3: of or relating to the  
churches using a traditional Greek rite and subject to Eastern  
council law 4: Labyrinthine (searching in the ~ complexity of  
the record for leads, defenses, and, in the case of Government law-  
yers, evidence of perjured testimony —A. L. Collier)  
Byzantinist /ˈbɪz-ən-tɪ-nɪst/ n: a student of Byzantine  
culture

wines and liquors 2: a restaurant serving liquor and providing  
entertainment (as by singers or dancers) also: the show provided

cabbage /ˈkæb-ɪ/ n, often attrib [ME *caboche*, fr. ONF, head] 1  
: a leafy garden plant (*Brassica oleracea capitata*) of European  
origin that has a short stem and a dense globular head of vari-  
ous green leaves and is used as a vegetable 2: a terminal bud of a  
palm tree that resembles a head of cabbage and is eaten as a vegeta-  
ble 3: slang: paper money or bank notes

cabbage n (verb, by folk etymology fr. MF *cabas* cheating, theft)  
Brit: pieces of cloth left in cutting out garments and traditionally  
kept by tailors as perquisites

cabbage vt cabbageed: cab-bag-ing: to take surreptitiously  
: STEAL FILCH

cabbage butterfly n: any of several largely white butterflies (fam-  
ily Pieridae) whose green larvae are cabbageworms; esp: a small  
cosmopolitan butterfly (*Plutella rapae*) that is a universal pest on  
cabbage

cabbage looper n: a moth (*Trichoplusia ni*) whose pale green  
white-striped larva is a pest of many crops that feeds on cruciferous  
plants (as the cabbage)

cabbage palm n: a palm with terminal buds eaten as a vegetable  
cabbage palmetto n: a fan-leaved cabbage palm (*Sabal palmetto*)  
native to coastal southern U.S. and the Bahamas

cab-bag-worm /ˈkæb-ɪ-wɜrm/ n: an insect larva (as of a cab-  
bage butterfly) that feeds on cabbages

cabby or cabble /ˈkæb-ɪ/ n, pl *cabbies*: CABDRIVER  
cab-driver /ˈkæb-dri-vər/ n: a driver of a cab

cab /kæb/ n, pl *cabs* [Scot. caber] 1: a young tree  
trunk used for tossing as a trial of strength in a Scottish sport  
cab /kæb/ n [ME *cabana*, fr. MF, fr. OFr. *cabane* hut, fr.  
ML *capanna*] 1 a: a private room on a ship for one or a few  
persons — compare CAGN CLASS b: a compartment below deck  
on a small boat for passengers or crew c: an airplane or airship  
compartment for cargo, crew, or passengers 2: a small one-story  
dwelling usu. of simple construction 3 a chiefly Brit: CAB 3 b:  
the part of a passenger (railer used for living quarters

cabin vt: to live in or as if in a cabin ~ vt: CONFINE

cabin boy n: a boy acting as servant on a ship

cabin cat n: CABOOTE

cabin class n: a class of accommodations on a passenger ship  
superior to tourist class and inferior to first class

cabin cruiser n: CRUISER 3

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